



2004

Do We See Feces?: Loon Pond 2003-2004

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Do We See Feces?

Loon Pond 2003-2004

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An Introduction to Loon Pond



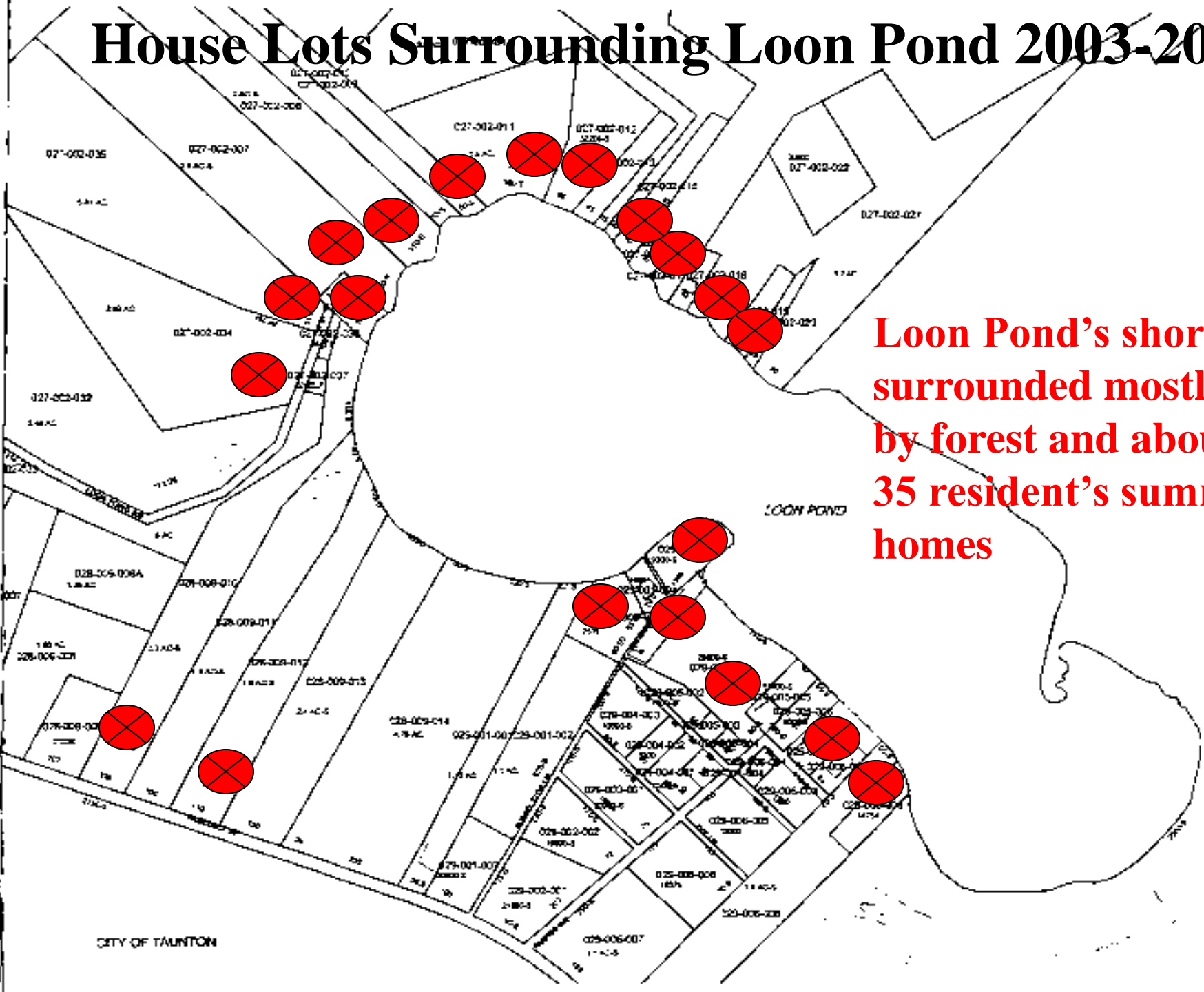
- spring fed
- 32 ft. deep
- 0.69 sq. mile surface area
- 3.10 sq. mile Sub Basin
- 35 houses surround the pond

Plot Date: April 01, 2004

For assessment purposes only; not to be used in legal boundary descriptions.



House Lots Surrounding Loon Pond 2003-2004



Loon Pond's shore is surrounded mostly by forest and about 35 resident's summer homes

CITY OF TAUNTON

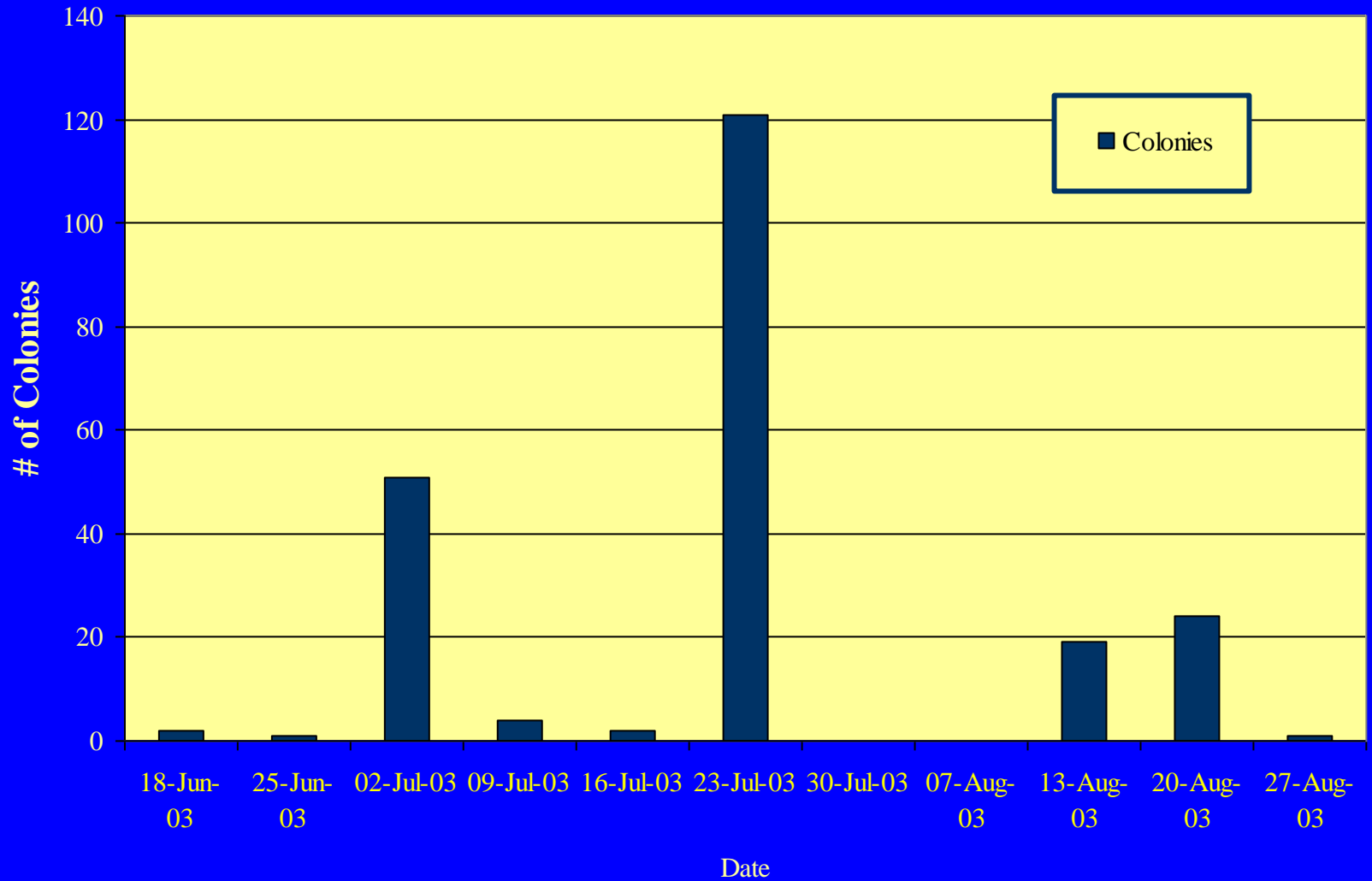
Why We Chose Loon Pond?

This past summer, the pond was closed to swimming. Thus we posed our thesis question, why was the pond closed?

- On July 24, 2003, the Pond accounted for a 121 enterococci per mL. **This is above acceptable values for freshwater.**



Colonies of Enterocci Ted Williams Camp 2003

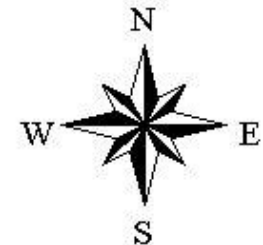
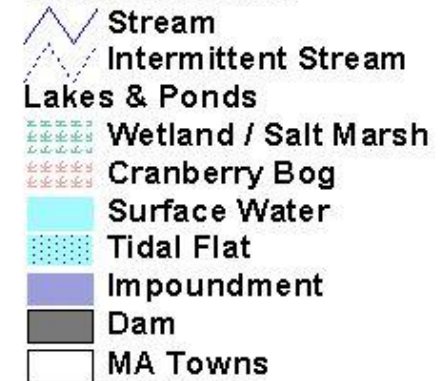


The pond provides recreational opportunities:

- swimming
- fishing
- canoeing


Three sites were chosen and dispersed around the pond for sampling purposes. They include:

- Camp Site, located within Ted Williams Camp
- Sunny Side Rd. Site, located around the summer homes
- Beach Site, located in a isolated/private area



0.6 0 0.6 1.2 1.8 Miles

Created by Elizabeth DesRoche
February 5, 2004



The History of Loon Pond

In 1889, Orville
Gerrish of
Portland, Maine
bought the
property
surrounding Loon
Pond from Horatio
Sampson.

A nursery and
house were
constructed on
the southeast shore
of Loon Pond



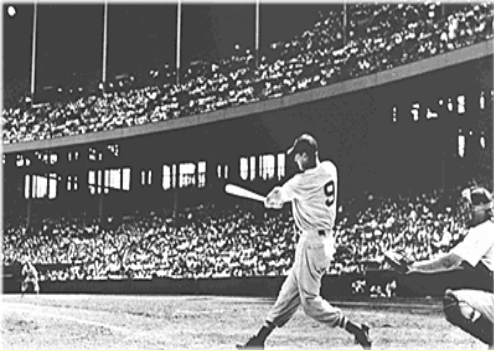


- After Orville Gerrish passed away in 1923, the Boston Council of Boy Scouts bought the property to be used for a summer camp

- The house that was built by Orville Gerrish was disassembled and moved to the front of the camp, located on Precinct Street.

- A large mess hall was built on the site where the house was removed. It is still there today.

- The property was then sold to the Lakeville Parks Department, and the Boy Scouts relocated to a different area.

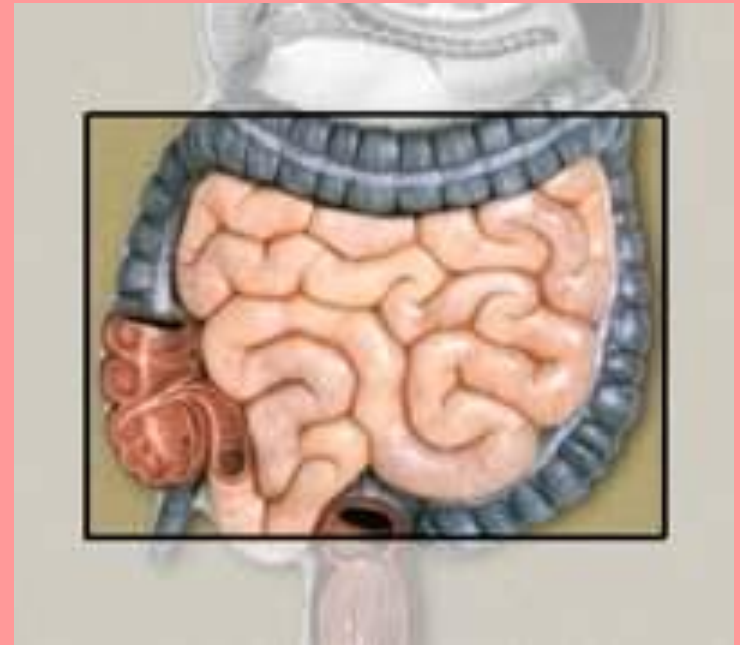


- Later the land was sold to Ted Williams, who created Ted Williams Baseball Camp.

- In 1986 the Town of Lakeville bought the property and is being used today by the town for a recreational site.

Fecal Coliforms: General Info

- **Enter water bodies from human and animal waste**
- **Present in large numbers in the feces and intestinal tracts of humans and other warm-blooded animals**
- **If a large number of fecal coliform bacteria are found in water, it is possible that pathogenic organisms are also present in the water**
- **By themselves are not pathogenic, are indicator organisms**



Harmful Aspects of Fecal Coliform

- Swimming in waters with high levels of fecal coliform bacteria increases the chance of developing illness from pathogens entering the body through the mouth, nose, ears, or cuts in the skin
- Diseases associated with high fecal coliform counts include typhoid fever, hepatitis, gastroenteritis, dysentery and ear infections
- Can usually be killed by boiling water or by treating it with chlorine



Five Factors that Affect Fecal Coliform

- Wastewater and septic system effluent
- Animal waste
- Sediment load
- Temperature
- Nutrients

Wastewater and Septic System Effluent

- Fecal coliform is in our wastes
- When we flush toilets it enters septic systems
- Leaky septic systems are passageways for coliform to enter streams
- We swim in our own wastes

Sediment Load

- There is a direct relationship between sediment and bacteria presence
- Usually when there is more sediment it is because there is more bacteria
- Bacteria are much more abundant in soil than in water

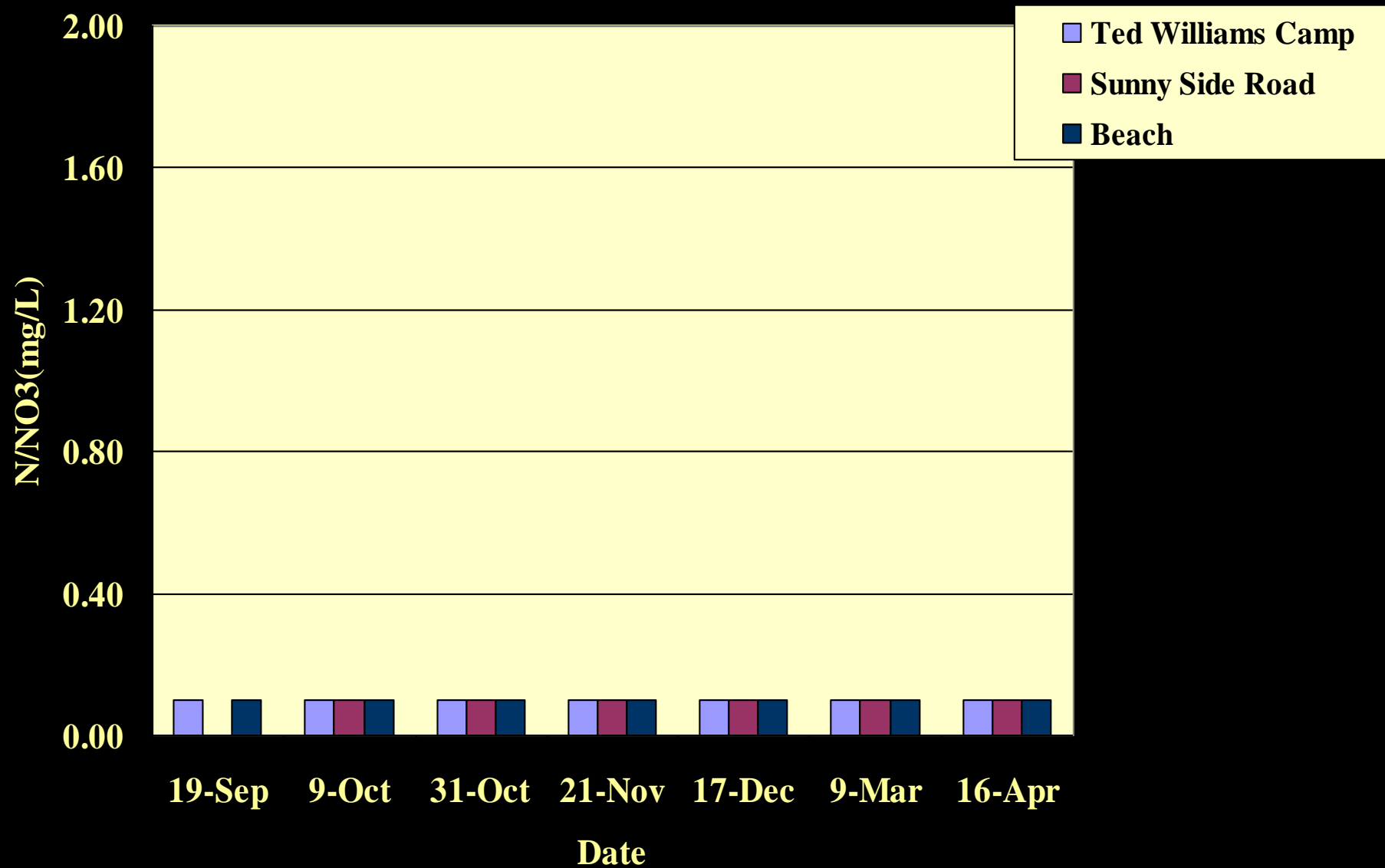
The Growth Rate of Bacteria

- High levels of nutrients increases growth rate of bacteria
- Bacteria grows faster at higher temperatures

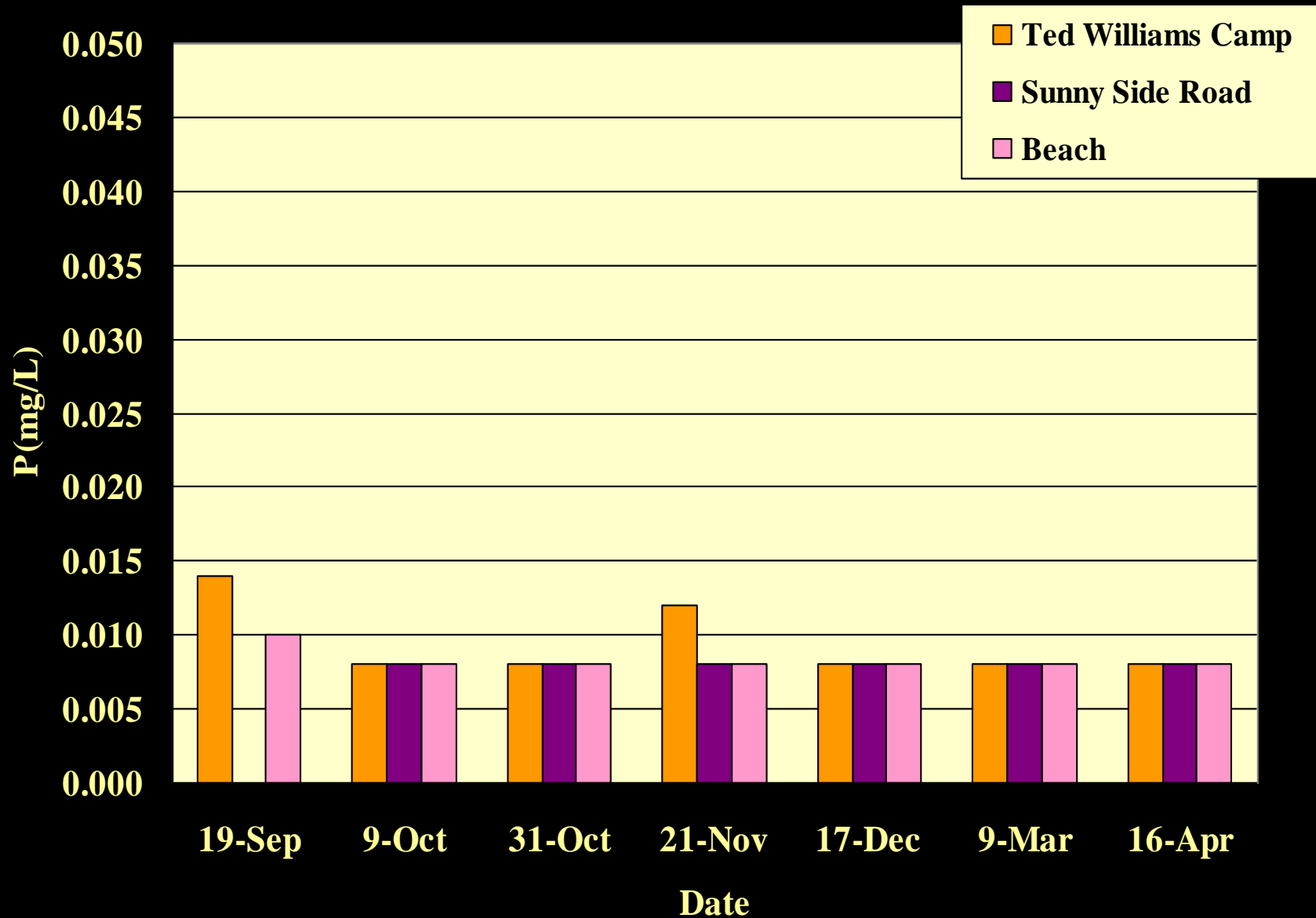
Nitrogen & Phosphorus

- majority of values are below detection limit
- changed any values below detection limit to the lowest possible values that the instrument can detect
- during testing, amount of Phosphorus did not exceed 0.025mg/L and the amount of Nitrogen did not exceed 5mg/L
- concentrations of phosphorus over 0.05mg/L will have some sort of impact

Nitrogen/Nitrate Loon Pond 2003-2004



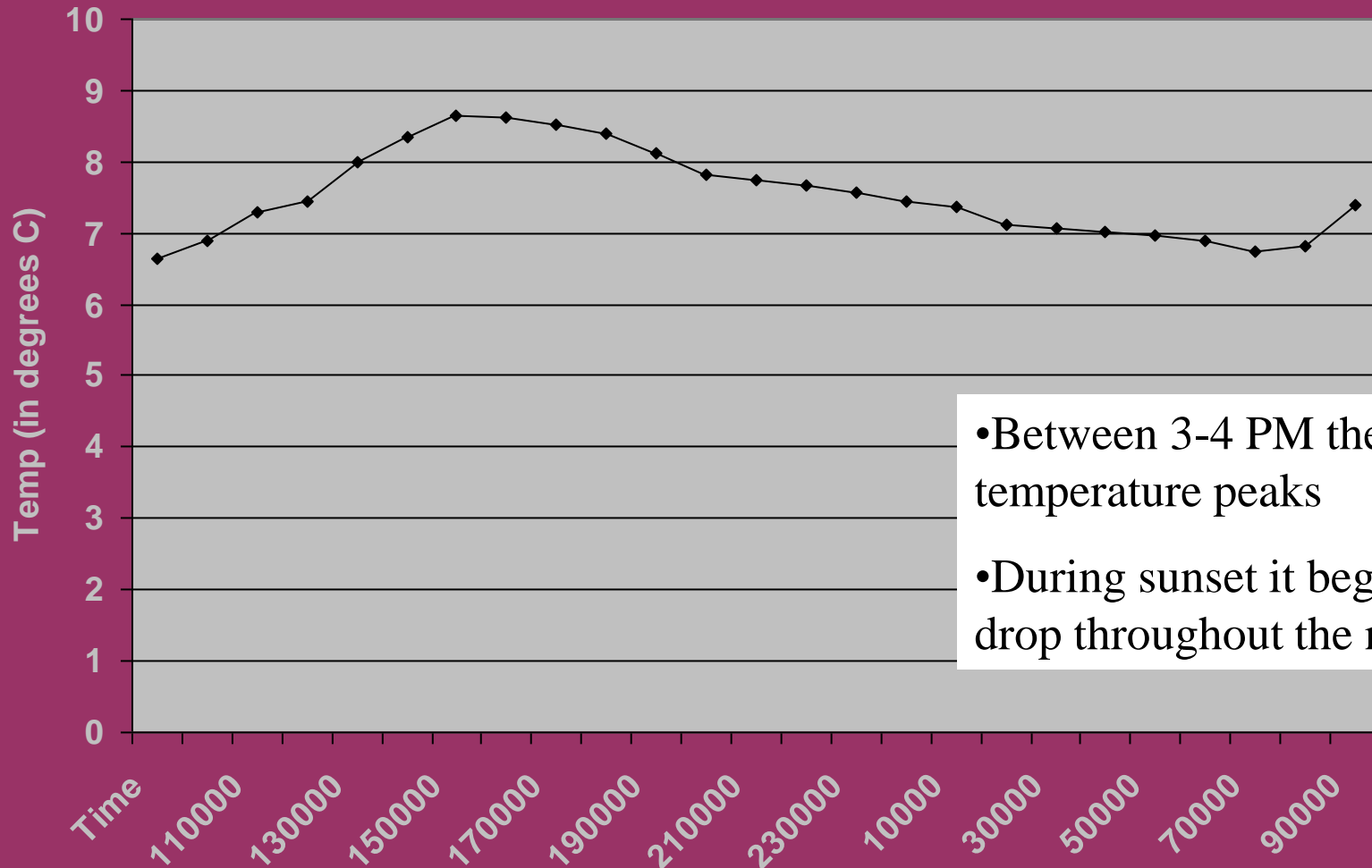
Reactive Phosphorus Loon Pond 2003-2004



Probe Data

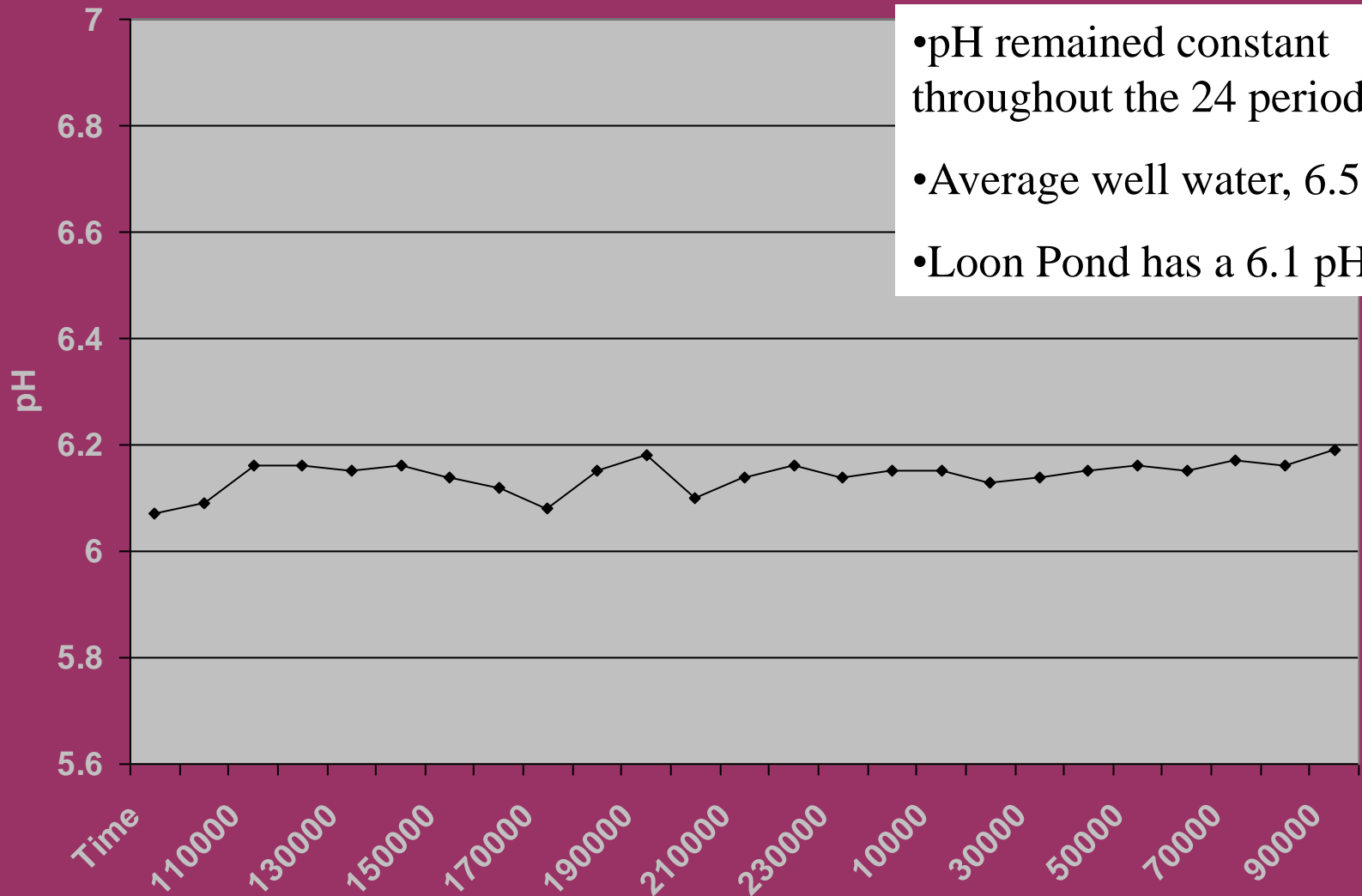
April 16, 2004

Temperature vs. Time of Loon Pond April 16, 2004



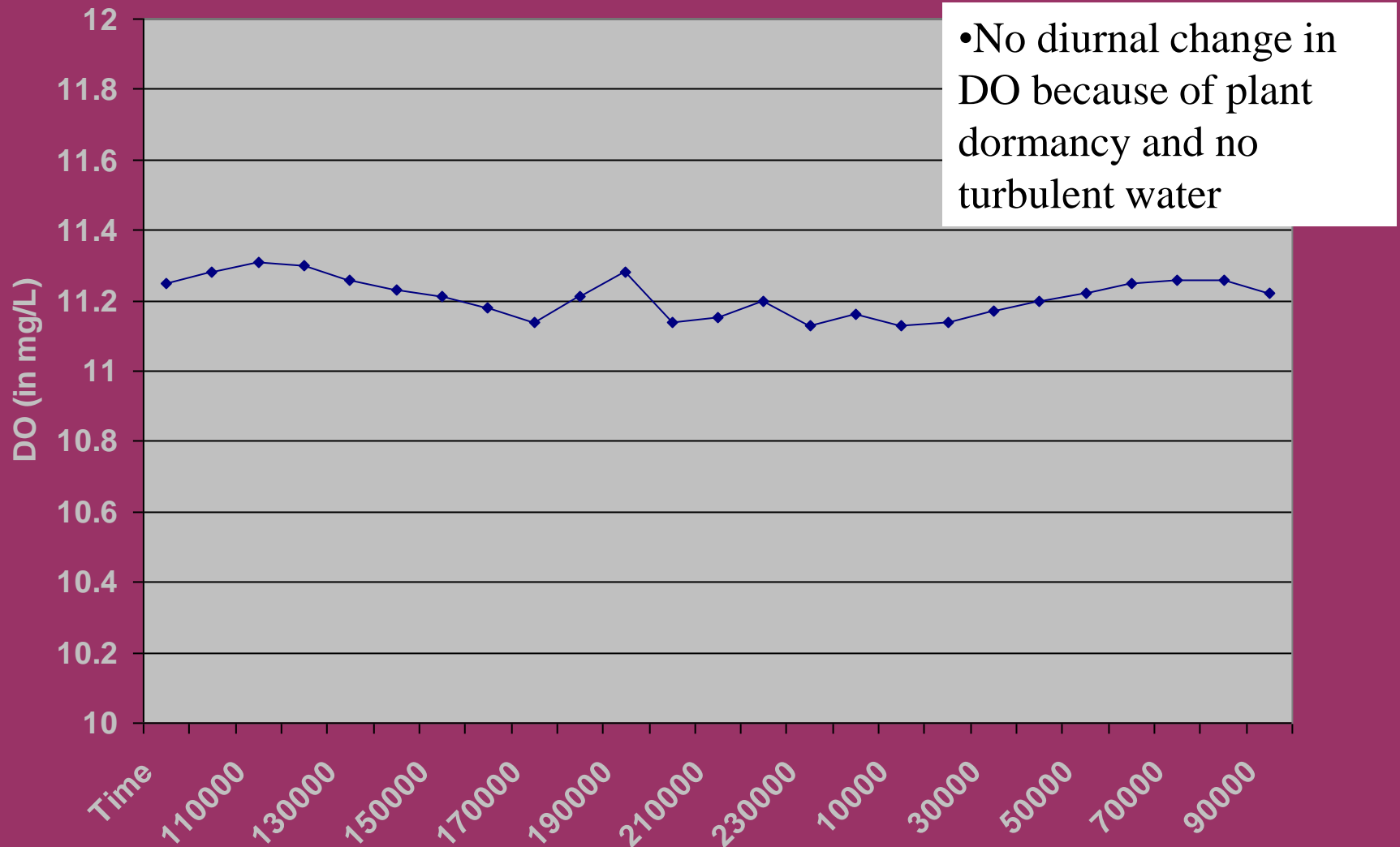
- Between 3-4 PM the temperature peaks
- During sunset it begins to drop throughout the night

pH vs. Time of Loon Pond April 16, 2004

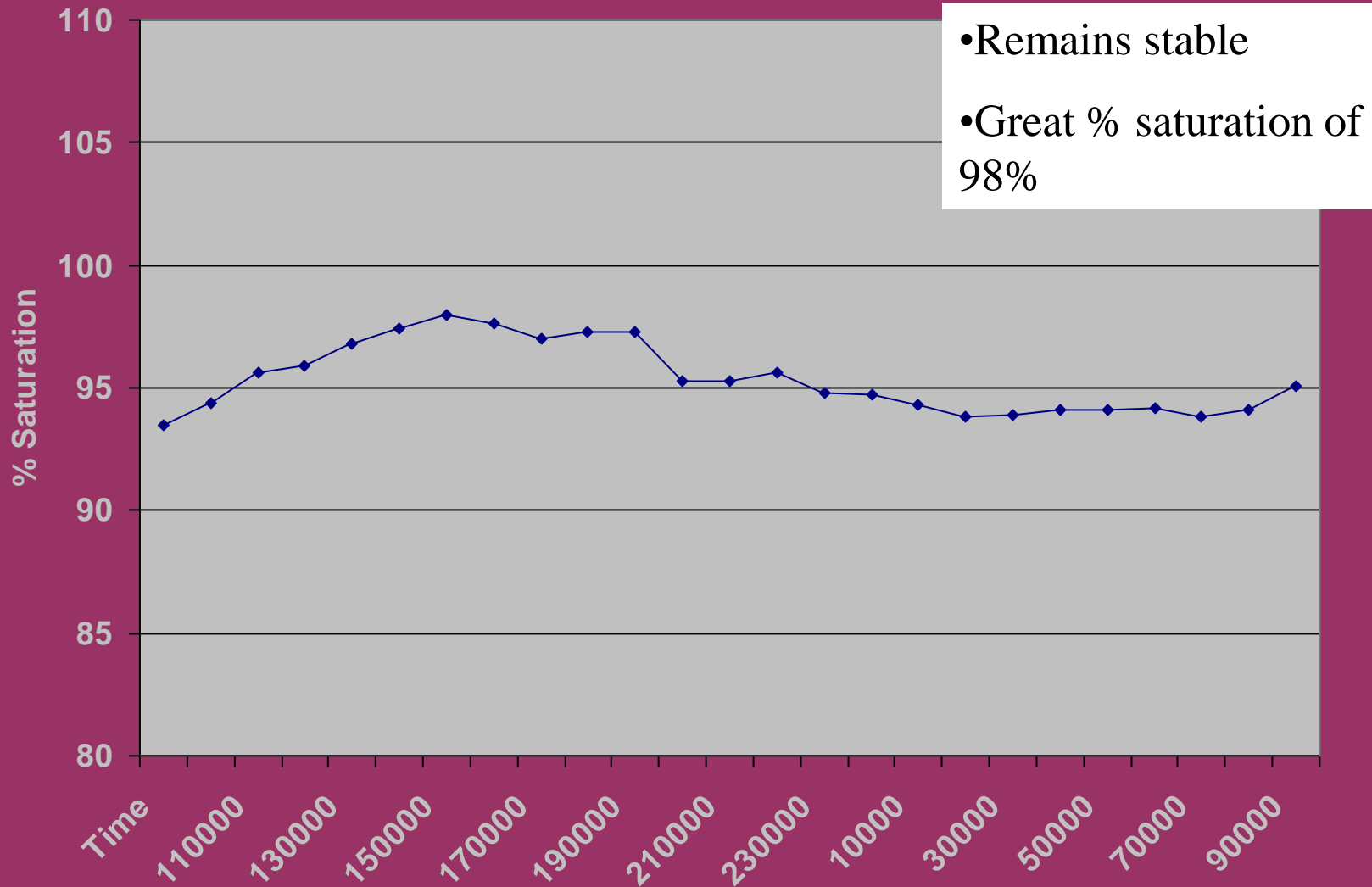


- pH remained constant throughout the 24 period
- Average well water, 6.5 pH
- Loon Pond has a 6.1 pH

DO vs. Time Loon Pond April 16, 2004



DO %Saturation vs. Time Loon Pond April 16, 2004



Conclusion

- no fecals found during our testing (winter months)
- possible Title Five violation
- fecals were found during testing in summer months, when summer houses on the pond are in use
- we sampled in the winter, in the same places that the summer tests were taken

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